

Claims

1) Live attenuated bacterium of the genus *Escherichia*, *Yersinia* or *Salmonella*, said bacterium not having a functional tRNA_s^{leu}, for use in a vaccine.

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2) Live attenuated bacterium for use according to claim 1, said bacterium not having a functional tRNA_s^{leu} as a result of a mutation in the *leux* gene.

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3) Live attenuated bacterium for use according to claim 1 or 2, wherein said bacterium is selected from the group consisting of *E. coli*, *S. enterica* serotype typhimurium, enteritidis, choleraesuis, dublin, typhi, gallinarum, abortusovi, abortus-equi or pullorum.

4) Live attenuated bacterium for use according to claim 1-3, characterised in that the mutation comprises an insertion and/or a deletion.

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5) Live attenuated bacterium for use according to claims 1-4, characterised in that said bacterium carries a heterologous gene.

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6) Live attenuated bacterium for use according to claim 5 characterised in that the heterologous gene is inserted in the *leux* gene.

7) Live attenuated vaccine for the protection of animals and humans against infection with a pathogenic bacterium or the pathogenic effects thereof, characterised in that said vaccine comprises a bacterium as defined in claims 1-6 and a pharmaceutically acceptable carrier.

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8) Live attenuated vaccine according to claim 7, characterised in that it comprises an adjuvant.

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9) Live attenuated vaccine according to claim 7 or 8, characterised in that it is in a freeze-dried form.

10) Use of a live attenuated bacterium as defined in claims 1-6 for the manufacture of a vaccine for the protection of animals against infection with a pathogenic bacterium or the pathogenic effects of infection.

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11) Method for the preparation of a vaccine according to claims 7-9, characterised in that said method comprises the admixing of a live attenuated bacterium as defined in claims 1-6 and a pharmaceutically acceptable carrier.